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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,340	03/24/2004	J. Michael Joseph	051252-5269	3496
7590	12/06/2006			EXAMINER CRANE, DANIEL C
			ART UNIT 3725	PAPER NUMBER

DATE MAILED: 12/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/807,340	JOSEPH ET AL.	
	Examiner	Art Unit	
	Daniel C. Crane	3725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-4, 6, 7 and 9-19 is/are rejected.
- 7) Claim(s) 5 and 8 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3/24/04 & 6/16/04.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

BASIS FOR REJECTIONS

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

REJECTION OF CLAIMS ON FORMAL MATTERS

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6, 9, 10, 11, 13, 16 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claimed "second virtual plane" in claim 6 infers that a first virtual plane is present, however, a first virtual plane is not claimed. The claimed "second arcuate portion" in claim 9 infers that a first arcuate portion is present, however, a first arcuate portion is not claimed. These inferences render the subject matter indefinite. Failure to provide antecedence for the "first and second chords" renders the subject matter indefinite in claim 10. Failure to provide antecedence for the "first oblique angle" renders claim 11 indefinite. With

reference to claim 13, failure to provide antecedence for “disc”, “first” and “second oblique angle” and “first virtual plane” renders the subject matter indefinite. Since claim 13 specifies features that have not been supported in the previous claims, the scope of this subject matter is indeterminate and has been examined as best understood. As to claim 16, no antecedence is provided for “virtual plane”.

REJECTION OF CLAIMS OVER PRIOR ART

Claims 1-4, 6, 7, 11 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi (Japanese document no. 5-293557). See Figures 1 and 2 where the tool 17 will inherently produce a first impression by the planar tool surface 16 and a second impression by the planar tool surface 15 so that a first orifice wall extends at an acute angle between the impressions in the volume of material. The pilot work surface 16 is spaced from the main work surface 15. The angle of the tool relative to the work surface of the material clearly falls within 3-30 degrees. The transition work surface is that surface having a truncated pyramidal side surfaces between the surface 16 and the surface 15 (see Figure 2).

Claim 12, 14, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (Japanese document no. 5-293557). As long as the angle of the tool relative to the workpiece is oblique and relatively small, it is maintained that the specific angle of 26 degrees would have been clearly within the purview of the skilled artisan in Takahashi’s punching operation. This is so since a relatively small angle facilitates a clean shearing of the workpiece by the punch. Greater oblique angles obviously result in a shear that is not as precise and results

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in some deformation along the cutting edges. Thus, without the criticality specified, it is the examiner's position that Takahashi's oblique angle would have been within that claimed by applicants. Since lateral stops are common in the art, such a provision within Takahashi's tool would have been obvious to the skilled artisan so as to further prevent movement and slip of the workpiece in a horizontal fashion. Similarly, the use of projections to hold workpieces during punching is also a well-known implement in the retaining of workpieces. Tool steel, even though not illustrated by Takahashi, is widely used in this industry for its wearability.

Claims 1-4, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeshita (6,678,955). See Figures 7-11 wherein the orifice formed in the workpiece 40 by extending a tool 41 having a tip 46 of different inclined surfaces into the volume of material between first and second planar surfaces of the workpiece 40 so that first and second impressions in sequence spaced apart about the longitudinal axis 52 are formed with the first impression being at an acute angle as measured from the first planar surface within the hole 30. As shown in Figures 9A and 9B, the hole is formed with two side walls, as shown in cross-section, one constituting the first impression and the other constituting the second impression. As to claim 2, the terminal end of the tip 46 comprises the "pilot work surface" with the "main work surface" defined by the inclined surfaces of the tip 46. See Figure 1A where θ_1 is equal to $15-45^\circ$.

Claims 14,15, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita (6,678,955). Since lateral stops are common in the art, such a provision within Takeshita's tool would have been obvious to the skilled artisan so as to further prevent

movement of the workpiece in a horizontal fashion. Similarly, the use of projections to hold workpieces during punching is also a well-known implement in retaining workpieces during the punching operation thereby preventing slip of the workpiece. Tool steel, even though not illustrated by Takeshita is widely used in this industry for its wearability. As to claim 17, see Figure 9A where obtuse and acute angles are formed in the workpiece 40, depending upon the reference surface being measured from.

Claims 1-3, 6, 7, 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Munechika (Japanese document no. 63-224820). See Figures 1 or 2 where the claimed tool is readable on tool 17 or tool 33. As to Figure 1, the first and second impressions formed in sequence are produced by surfaces 19 and 18 with the first orifice wall being formed therebetween by surface 19A. As to Figure 2, the tool 33 produces impressions in sequence by surface 35A and 34 with the transition surface extending therebetween for forming the first orifice wall as an acute angle surface with respect to a first planar surface of the workpiece 40. Since the workpiece 40 in Figure 2 is centered with respect to the second punch 33 by first engaging projection 35A with the indentation 40A on the workpiece (see the first full paragraph on page 3 of the translation), clearly a “sequence” in the formation of the impressions is performed by the tool 33 so as to finally shear the workpiece 40 by the tool 33.

Claim 4, 11-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Munechika (Japanese document no. 63-224820). As long as the angle of the tool relative to the workpiece is oblique and relatively small, it is maintained that the specific angle of 26 degrees or

within the range of 10-30 degrees would have been clearly within the purview of the skilled artisan in Munechika's punching operation. This is so since a relatively small angle facilitates a clean shearing of the workpiece by the punch, particularly that of Figure 2 where a final cutting is performed by the punch 33. Greater oblique angles obviously result in a shear that is not as precise and results in some deformation along the cutting edges. Thus, without the criticality specified, it is the examiner's position that Munechika's oblique angle would have been within that claimed by applicants. Since lateral stops are common in the art, such a provision within Munechika's tool would have been obvious to the skilled artisan so as to further prevent movement of the workpiece in a horizontal fashion, especially in view of the fact that the workpiece 40 is clamped by tool parts 21 and 31. Similarly, the use of projections to hold workpieces during punching is also a well-known implement in the retaining of workpieces to prevent workpiece slip relative to the punching implement. Tool steel, even though not illustrated by Munechika is widely used in this industry for its wearability. Claim 13 has been best examined as noted above.

INDICATION OF ALLOWABLE SUBJECT MATTER

Claims 5 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Claims 9 and 10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

PRIOR ART CITED BY EXAMINER

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

RESPONSE BY APPLICANT(S)

Applicant(s) response to be fully responsive and to provide for a clear record must specifically point out how the language of the claims patentably distinguishes them from the references, both those references applied in the objections and rejections and those references cited in view of the state of the art in accordance with 37 CFR 1.111 (a), (b) and (c).

INQUIRIES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner D. Crane whose telephone number is **(571) 272-4516**. The examiner's office hours are 7:00AM-3:30PM, Monday through Friday.

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Documents related to the instant application may be submitted by facsimile transmission at all times to Fax number **(571) 273-8300**. Applicant(s) is(are) reminded to clearly mark any transmission as "DRAFT" if it is not to be considered as an official response. The Examiner's Fax number is **(571) 273-4516**.

DCCrane
December 1, 2006



Daniel C. Crane
Primary Patent Examiner
Group Art Unit 3725